

Appendix E

EPA-IRIS Risk Based Screening Values (SVs)

For Fish Tissue Consumption

(Adapted from USEPA-IRIS, 2003)

(From 2006 Assessment Guidance Manual)

These screening values will remain effective until the publication of the 2008 Assessment Guidance Manual.

Risk-Based Screening Values for Fish Tissues

Fish Tissue Values (TV)

COMPOUND		NON CARCINOGEN	CARCINOGEN
		CRITERION BASED TISSUE VALUE (TV)	CRITERION BASED TISSUE VALUE (TV)
	CAS #	PPB	PPB
Acenaphthene	83-32-9	650,000	
Acrolein	107-02-8	170,000	
Acrylonitrile	107-13-1		200
Aldrin	309-00-2		6.3
Anthracene	120-12-7	3,200,000	
Antimony	7440-36-0	4,300	
Benzene	71-43-2		3,700
Benzidine	92-87-5		0.47
Benzo(a)anthracene	56-55-3		15
Benzo(b)fluoranthene	205-99-2		15
Benzo(k)fluoranthene	207-08-9		15
Benzo(a)pyrene	50-32-8		15
Bis(2-chloroethyl) ether	111-44-4		98
Bis(2-chloroisopropyl) ether	108-60-1	430,000	
Bromoform	75-25-2		14,000
Butyl benzyl phthalate	85-68-7	2,200,000	
Carbon tetrachloride	56-23-5		830
Total Chlordane	57-74-9		310
Chlorobenzene	108-90-7	220,000	
Chlorodibromomethane	124-48-1		1,300
2-Chloronaphthalene	91-58-7	860,000	
Chloroform	67-66-3		18,000
2-Chlorophenol	95-57-8	54,000	
Chrysene	218-01-9		15
Cyanide	57-12-5	220,000	
DDD	72-54-8		450
DDE	72-55-9		320
Total DDT	50-29-3		320
Dibenz(a,h)anthracene	53-70-3		15
Dibutyl phthalate	84-74-2	1,100,000	
Dichloromethane	75-09-2		14,000
1,2-Dichlorobenzene	95-50-1	970,000	
1,3-Dichlorobenzene	541-73-1	140,000	
1,4-Dichlorobenzene	106-46-7	140,000	
3,3-Dichlorobenzidine	91-94-1		240
Dichlorobromomethane	75-27-4		1,700
1,2-Dichloroethane	107-06-2		1,200
1,1-Dichloroethylene	75-35-4	97,000	
1,2-Trans-dichloroethylene	156-60-5	220,000	
2,4-Dichlorophenol	120-83-2	32,000	
1,2-Dichloropropane	78-87-5		1,600
1,3-Dichloropropene	542-75-6	3,200	
Dieldrin	60-57-1		6.7
Diethyl phthalate	84-66-2	8,600,000	
Di-2-ethylhexyl phthalate	117-81-7		7,700
2,4-Dimethylphenol	105-67-9	220,000	
Dimethyl Phthalate	131-11-3	110,000,000	
Di-n-butyl phthalate	84-74-2	1,100,000	
2,4-Dinitrophenol	51-28-5	22,000	
2-Methyl-4,6-dinitrophenol	534-52-1	4,200	
2,4-Dinitrotoluene	121-14-2		350
Dioxin	1746-01-6		0.0062
1,2-Diphenylhydrazine	122-66-7		130
Endosulfan (I and II)	115-29-7	65,000	

COMPOUND		NON CARCINOGEN	CARCINOGEN
		CRITERION BASED TISSUE VALUE (TV)	CRITERION BASED TISSUE VALUE (TV)
Endosulfan sulphate	1031-79-8	65,000	
Endrin	72-20-8	3,200	
Endrine aldehyde	7421-93-4	3,200	
Ethylbenzene	100-41-4	1,100,000	
Fluoranthene	206-44-0	430,000	
Fluorene	86-73-7	430,000	
Heptachlor	76-44-8		24
Heptachlor epoxide	1024-57-3		12
Hexachlorobenzene	118-74-1		67
Hexachlorobutadiene	87-68-3		1,400
Hexachlorocyclohexane (alpha-BHC)	319-84-6		17
Hexachlorocyclohexane (beta – BHC)	319-85-7		60
Hexachlorocyclohexane (lindane) (gamma-BHC)	58-89-9		60
Hexachlorocyclopentadiene	77-47-4	75,000	
Hexachloroethane	67-72-1		7,700
Indeno(1,2,3-cd)pyrene	193-39-5		15
Isophrone	78-59-1		110,000
Mercury (Methyl)	22967-92-6	1,100	
Methyl bromide	74-83-9	15,000	
Monochlorobenzene	108-90-7	220,000	
Nickel	744-00-2	220,000	
Nitrobenzene	98-95-3	5,400	
N-nitrosodimethylamine	62-75-9		2.11
N-nitrosodiphenylamine	86-30-6		22,000
N-nitrosodi-n-propylamine	621-64-7		15
PCB Total/congeners	1336-36-3		54
Pentachlorophenol	87-86-5		900
Phenol	108-95-2	6,500,000	
Pyrene	129-00-0	320,000	
Selenium	7782-49-2	54,000	
1,1,2,2-Tetrachloroethane	79-34-5		540
Tetrachloroethylene	127-18-4		2,700
Thalium	7440-28-0	730	
Toluene	108-88-3	2,200,000	
Toxaphene	8001-35-2		98
1,2,4-Trichlorobenzene	120-82-1	110,000	
1,1,2-Trichloroethane	79-00-5		1,900
Trichloroethylene	79-01-6		860
2,4,6-Trichlorophenol	88-06-2		9,800
Vinyl Chloride	75-01-4		72

**RISK-BASED TISSUE SCREENING VALUE (TSVs) FOR FISH TISSUE
UPDATED FROM INTEGRATED RISK INFORMATION SYSTEM (IRIS) FOR GENERAL POPULATION (ADULT)**

**BODY WEIGHT (KG) 70
RISK LEVEL 10⁻⁵
CONSUMPTION RATE (KG/DAY) 0.0065**

Fish Tissue Screening Values (TSV)

COMPOUND		NON CARCINOGEN	CARCINOGEN
		TISSUE SCREENING VALUE (TSV)	TISSUE SCREENING VALUE (TSV)
	CAS #	PPB	PPB
Arsenic (inorganic)	7440-38-2		72**
Barium	7440-39-3	750,000	
BHC isomers	608-93-1		20
Brominated Diphenyl ethers (BDEs)		5,000	
Cadmium	7440-43-9	11,000	
Chromium III	16065-83-1	16,000,000	
Chromium VI	18540-29-9	32,000	
Chlorpyrifos	2921-88-2	32,000	
Diazinon	333-41-5	970	
Decofol	115-32-2	11,000	
Dioxin	1746-01-6		0.003**
Disulfoton	298-04-4	430	
Ethion	563-12-2	5,400	
Kepone	143-50-0	300	
Mercury (Methyl)	22967-92-6	300 (EPA2001)** (500VDH)**	
Methoxychlor	72-43-5	54,000	
Mirex	2385-85-5	2,200	
Oxyfluorfen	42874-03-3		830
PAHs (sum PEC) ***			15
Terbufos	13071-79-9	1400	
Tributyltin	56-35-9	320	

** These values are based on recent changes to the toxicological data used to calculate the screening values, or recent recommendations from U.S. EPA or the Virginia Department of Health. These screening values are not based on the same toxicological data that were used to develop the existing water quality criteria.

*** Mixtures of seven polynuclear aromatic hydrocarbons (PAHs) that are classed as probable human carcinogens were assessed based on a screening value concentration of 15 ppb calculated as a sum potency equivalency concentration (PEC) using methods described in EPA's Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Vol. 1, (EPA 823-R-95-007) and Vol. 2 (EPA 823 B-00-008) using the following equation;

PEC = Σ (R_{Pi} x C_i) where:

R_{Pi} = relative potency for the ith PAH

C_i = concentration of the ith PAH in fish tissue)

The relative potency estimates used for these PAHs were:

Benzo(a)pyrene 1.0

Benzo(a)anthracene 0.145

Benzo(b)fluoranthene 0.167

Benzo(k)fluoranthene 0.020

Chrysene 0.0044

Dibenz(a,h)anthracene 1.11

Indeno(1,2,3-cd)pyrene 0.055